

What is claimed is:

- 1 1. A bonding pad structure, comprising:
2 a bonding pad substantially surrounded and insulated by
3 a dielectric layer, wherein the bonding pad comprises
4 at least one first conductive layer having a wiring
5 layer with a stripe layout and a first edge portion,
6 a second conductive layer having a wire bonding
7 portion and a second edge portion and a plurality
8 of plugs electrically connecting the wiring layer
9 and the wire bonding portion; and
10 a conductive structure connecting the first edge portion
11 and the second edge portion.
- 1 2. The structure according to claim 1, further
2 comprising:
3 an electrostatic discharge (ESD) protection device
4 electrically connected to the first conductive layer.
- 1 3. The structure according to claim 1, wherein a material
2 of the dielectric layer is a low dielectric constant material.
- 1 4. The structure according to claim 1, wherein the first
2 conductive layer is a metal layer.
- 1 5. The structure according to claim 1, wherein the second
2 conductive layer is a metal layer.
- 1 6. The structure according to claim 1, wherein the
2 conductive structure is an array of metal plugs.

1 7. The structure according to claim 1, wherein the
2 conductive structure is a metal damascene structure.

1 8. A bonding pad structure, comprising:
2 a substrate having an interlevel dielectric (ILD) layer
3 thereon,
4 a bonding pad formed on the ILD layer and substantially
5 surrounded and insulated by an intermetal dielectric
6 (IMD) layer, wherein the bonding pad comprises at
7 least one metal layer having a wiring layer with a
8 stripe layout and a first edge portion, a bonding
9 metal layer having a wire bonding portion and a second
10 edge portion and a plurality of plugs electrically
11 connecting the wiring layer and the wire bonding
12 portion; and
13 a conductive structure connecting the first edge portion
14 and the second edge portion.

1 9. The structure according to claim 8, further
2 comprising:
3 an electrostatic discharge (ESD) protection device
4 electrically connected to the first conductive layer.

1 10. The structure according to claim 8, wherein a material
2 of the IMD layer is a low dielectric constant material.

1 11. The structure according to claim 8, wherein the
2 conductive structure is an array of metal plugs.

1 12. The structure according to claim 8, wherein the
2 conductive structure is a metal damascene structure.

1 13. A method of forming a bonding pad structure, comprising
2 the steps of:

3 providing a bonding pad substantially surrounded and
4 insulated by a dielectric layer, wherein the bonding
5 pad is formed of at least one first conductive layer
6 having a wiring layer with a stripe layout and a first
7 edge portion, a second conductive layer having a wire
8 bonding portion and a second edge portion and a
9 plurality of plugs electrically connecting the wiring
10 layer and the wire bonding portion; and

11 forming a conductive structure to connect the first edge
12 portion and the second edge portion, thereby
13 preventing burn out of the first edge portion during
14 an ESD event.

1 14. The method according to claim 13, further comprising
2 the step of:

3 forming an electrostatic discharge (ESD) protection device
4 electrically connected to the first conductive layer.

1 15. The method according to claim 13, wherein a material
2 of the dielectric layer is a low dielectric constant material.

1 16. The method according to claim 13, wherein the first
2 and second conductive layers are metal layers.

1 17. The method according to claim 13, wherein the
2 conductive structure is an array of metal plugs.

1 18. The method according to claim 13, wherein the
2 conductive structure is a metal damascene structure.

1 19. A method of forming a bonding pad structure, comprising
2 the steps of:

3 providing a substrate having an interlevel dielectric (ILD)
4 layer thereon,

5 forming a bonding pad on the ILD layer;

6 forming an intermetal dielectric (IMD) layer to surround
7 and insulate the bonding pad, wherein the bonding
8 pad is formed of at least one metal layer having a
9 wiring layer with a stripe layout and a first edge
10 portion, a bonding metal layer having a wire bonding
11 portion and a second edge portion and a plurality
12 of plugs electrically connecting the wiring layer
13 and the wire bonding portion; and

14 forming a conductive structure to connect the first edge
15 portion and the second edge portion, thereby
16 preventing burn out of the first edge portion during
17 an ESD event.

1 20. The method according to claim 19, further comprising
2 the step of:

3 an electrostatic discharge (ESD) protection device
4 electrically connected to the first conductive layer.

1 21. The method according to claim 19, wherein a material
2 of the IMD layer is a low dielectric constant material.

1 22. The method according to claim 19, wherein the
2 conductive structure is an array of metal plugs.

1 23. The method according to claim 19, wherein the
2 conductive structure is a metal damascene structure.